

In the Specification

Please replace the Sequence Listing on pages 1-11 with a substitute Sequence Listing presented on pages 1-12, enclosed herewith.

On page 6, please replace the paragraph starting on line 17 with the following:

Figures 2A-I are a double-stranded depiction of the DNA sequence of the rice (*Oryza sativa*) bZIP protein (SEQ ID NO: 35), designated ("Reb"). The gene sequence of 6.227 kb consists of 5 introns and 6 exons flanked by 1.2kb of the 5' promoter and 1.2 kb of the 3' region.

On page 6, please replace the paragraph starting on line 21 with the following:

Figure 4 is a single-stranded depiction of a portion of the DNA sequence of the Glb promoter (SEQ ID NO: 39) with putative Reb binding sites indicated.

On page 7, please replace the paragraph starting on line 21 with the following:

Figure 9 depicts the DNA sequence of the rice (*Oryza sativa*) globulin promoter (SEQ ID NO: 29), ("Glb") with putative binding sites for the O2 transcription factor and the prolamin box indicated in the figure.

On page 7, please replace the paragraph starting on line 24 with the following:

Figure 10 depicts the DNA sequence of the wheat Bx7 promoter (SEQ ID NO: 30) with putative binding sites for the O2 transcription factor and the prolamin box indicated in the figure.

On page 14, please replace the paragraph starting on line 3 with the following:

In some cases a native promoter is non-responsive to a particular transcription factor. The present invention provides a method for modification of such a promoter to contain a response sequence or element with which the transcription factor may interact, as exemplified herein by the modification of the rice glutelin-1 (*Gt-1*) promoter to contain a 98 bp Reb upstream activation sequence (UAS fragment containing 3 copies of GCCACGT(C/A)AG (SEQ ID NO:36) amplified from the Glb promoter)

inserted at position -630 bp distal to the TATA box of the Gt1 promoter in order to generate Gt1+UAS-GUS. The invention further provides seed specific promoters that have been modified to include the response sequence for a transcription factor not found in the native form of the promoter, wherein the modified seed specific promoter may be activated interaction with the transcription factor.

On page 16, please replace the paragraph starting on line 7 with the following:

It has previously been shown that O2 is capable of binding to the promoter of 22-kD zein genes (Schmidt *et al.*, 1990) and that the bZIP domain in O2 mediates this binding (Aukerman *et al.*, 1991). DNA footprinting was used to identify the O2 binding site as 5'-TCCACGTAGA-3' (SEQ ID NO:40) (designated the "O2 box"). The site is located in the -300 region relative to the translation start and lies about 20 bp downstream of the highly conserved zein gene sequence motif known as the "prolamin box".

On page 18, please replace the paragraph starting on line 19 with the following:

Nakase *et al.*, 1997, have described a cloned bZIP protein gene from rice, named Reb for rice endosperm bZIP protein. Reb was demonstrated to bind specifically to the sequences GCCACGTAAG (SEQ ID NO:37) and GCCACGTCAG (SEQ ID NO:38) in the distal part of the rice globulin (Glb) gene promoter, however, its function as a transcriptional activator or suppressor was not described. The complete coding sequence for Reb, isolated from rice endosperm may be found at GenBank Accession number ABO21736. (Nakase *et al.*, 1997.)

On page 19, please replace the paragraph starting on line 14 with the following:

The results described in Examples 1 and 2 show that (1) Reb is a transcriptional activator; (2) Reb specifically activates the Glb promoter but not glutelin (*Gt-1*) gene family promoters; and (3) Reb interacts with an approximately 100 bp upstream activation sequence (UAS) containing the motifs GCCACGTCAG (SEQ ID NO:38) and GCCACGTAAG (SEQ ID NO:37) (GCCACGT(A/C)AG) (SEQ ID NO:36) of the Glb promoter, as confirmed by loss-of-function and gain-of-function experiments.

On page 30, please replace the paragraph starting on line 18 with the following:

In order to determine, if binding of the Reb protein to the motif (GCCACGT(A/C)AG) (SEQ ID NO:36) in the globulin (Glb) gene promoter activates transcription of this promoter, plasmids containing fusions of the Reb coding region with the Glb promoter and the rice actin (Act) gene promoter were prepared (Fig. 6A). These as well as the expression plasmid containing the native Reb gene (pAPI266) were co-bombarded into the rice endosperm with a plasmid containing the GUS reporter gene driven by the Glb gene promoter and an internal control plasmid containing the luciferase gene driven by the ubiquitin promoter.

On page 30, please replace the paragraph starting on line 34 with the following:

Using a band-shift assay, Nakase *et al.*, 1997 have shown that Reb binds to two motifs, GCCACGTAAG (SEQ ID NO:37) or GCCACGTCAG (SEQ ID NO:38). An analysis of the Glb promoter sequence revealed two copies of GCCACGTAAG (SEQ ID NO:37) and one copy of GCCACGTCAG (SEQ ID NO:38) clustered in the sequence region -700 bp distal to the TATA box of the promoter (Fig. 4).

On page 31, please replace the paragraph starting on line 13 with the following:

A scan of the rice glutelin1 (Gt1) promoter sequence did not reveal the presence of Reb binding motifs. Accordingly, Gt1 was selected as a candidate for the introduction of the UAS from the Glb promoter in order to test for gain of the Reb response function. Heterologous nucleic acid constructs were prepared containing the native Gt1 promoter linked to the GUS gene (Gt1-GUS), and a Gt1 promoter modified to contain a 98 bp Reb UAS fragment containing 3 copies of GCCACGT(C/A)AG (SEQ ID NO:36) (amplified from the Glb promoter) was inserted at position -630 bp distal to the TATA box of the Gt1 promoter in order to generate Gt1+UAS-GUS (Fig. 8A).

On page 31, please replace the paragraph starting on line 26 with the following:

The Reb protein was previously described as a transcription factor. The results described herein show that (1) Reb is a transcriptional activator, as evidenced by a 2.0

to 2.5-fold increase in GUS activity when Reb effector constructs were co-transferred with the reporter *uid A* gene encoding GUS under the control of the Glb promoter into immature rice endosperm cells; (2) Reb specifically activates the Glb promoter but not glutelin gene family promoters; (3) Reb interacts with an approximately 100 bp upstream activation sequence (UAS) containing the motifs GCCACGTCAG (SEQ ID NO:38) and GCCACGTAAG (SEQ ID NO:37) (GCCACGT(A/C)AG) (SEQ ID NO:36) of the Glb promoter, as confirmed by loss-of-function and gain-of-function experiments. The loss of activation function, when the 200bp fragment containing the Reb UAS is removed from the Glb gene promoter, and the gain of this function, when the 98bp fragment with Reb UAS is added to the Gt1 promoter, establishes the 98bp fragment as an upstream activation sequence (UAS).

On page 32, please replace Table 1 with the following:

Primers	Primer sequences	PCR amplified fragment (bp)	Annealing temperature
Gt3/fw Gt3/rv	GTTAGTcTGCagTGTAAGTGTAGCTTC (<u>SEQ ID NO:3</u>) ATGGTTGtCtaGaTTTTGTGGGACTGAAC (<u>SEQ ID NO:4</u>)	856	58°C
GluB-1/fw2 GluB-1/rv2	ACAGACAGcTGcAGAGATATGGATTTTCTAAG (<u>SEQ ID NO:5</u>) GGAACCTCtAgAGCTATTTGTACTTGCTTATG (<u>SEQ ID NO:6</u>)	1319	62°C
GluB-2/fw GluB-2/rv	TCCGAGcTgcAGTAATGGATACCTAGT (<u>SEQ ID NO:7</u>) GTAGTTtCtAgAGCTATTAGCAGTTGC (<u>SEQ ID NO:8</u>)	1028	58°C
PG5a/fw2 PG5a/rv2	CGGTGcTGcAGATGGGTTGGGAACCCT (<u>SEQ ID NO:9</u>) ATGATCTagATTGCTCTGGGACATAGAT (<u>SEQ ID NO:10</u>)	874	58°C
RP6/fw RP6/rv	AATTCCTgCagCATCGGCTTAGGTGTA (<u>SEQ ID NO:11</u>) TGATCTagATTGTTGTTGGATTCTACT (<u>SEQ ID NO:12</u>)	684	58°C
Osglb/fw2 Osglb/rv	GGCGCCTGcAGGGAGGAGAGGGGAGAGAT (<u>SEQ ID NO:13</u>) ACCTTGCTctagATTGATGATCAATCAGA (<u>SEQ ID NO:14</u>)	997	58°C
Bx7/fw2 Bx7/rv	CGTCGTCTcTGcAGGCCAGGGAAAGACAATG (<u>SEQ ID NO:15</u>) CGCTTAAtCtAgaTCAGTGAAGTGTAGTG (<u>SEQ ID NO:16</u>)	993	62°C